

### **REMARKS/ARGUMENTS**

Claims 8-17 are pending in the present application. Claims 8, 11, 12 and 16 are presently amended and claims 9 and 13 are cancelled. The amendments made to claims find support throughout the original specification as filed, and thus add no new matter. Accordingly, entry of the amendments is respectfully requested.

### **Rejections under 35 U.S.C. §§ 102 and 103**

The Examiner has rejected claims 8-13, 15 and 17 under 35 U.S.C. § 102(b) as anticipated by Wiltzer et al. (US6,107,449), and claims 14 and 16 under 35 U.S.C. § 103(a) as unpatentable over Wiltzer et al.. Applicants respectfully disagree.

As noted in applicant's previous response, the present application is directed to an improvement over the methods disclosed in Wiltzer et al. Mr. Wiltzer is the inventor of the present application. The Wiltzer et al. patent and the present application were commonly owned at the time of the invention by Polymer Engineering GmbH.

As the Wiltzer et al. patent forms the starting point of the present invention, the Examiner is correct in his statement:

*"Wiltzer discloses a method for the continuous production of polyamide, starting with a material comprised of a salt of hexamethylenediamine with adipic acid (AH salt), water and lactam (see Claim 1, meeting the corresponding limitations of claims 8 and 12), which together form a prepolymer."*

Wiltzer et al. prepares this prepolymer by means of a dissolving vessel (1) for the starting materials, from which the resulting mixture (aqueous AH salt solution), is preheated in a heat exchanger (7) and is fed to a pressure reactor (8). Wiltzer Col. 2, lines 24 to 45. As explicitly stated at Col. 2, lines 45-46 of Wiltzer, the pressure reactor (8) is operated without removing volatiles therefrom even though this pressure reactor (8) is provided with a gas space in its top. The resulting low viscosity polymer (or prepolymer) in the pressure reactor (8) is then passed via a melt drying section (10) to a second pressure reactor (11). It is only in the melt drying section (10) where the prepolymer is heated to 280°C, and where the excess of water present in the prepolymer is evaporated. Moreover, the melt drying section (10) does not have a gas space, and there is no pressure control, neither on passing the prepolymer from the first pressure reactor (8) to the melt drying section (10) nor on passing the prepolymer or its liquid and evaporated components from the melt drying section (10) to the second

pressure reactor (11).

In contrast to Wiltzer et al., in the methods of claims 8 and 12 as amended, the starting material is heated in a first reactor having a first gas space at a temperature of between 180°C and 280°C. Doing so produces, in the first gas space, evaporated water containing reaction components. The evaporated water is then supplied to the second gas space of the second reactor using the pressure controlled connection between the two spaces. The pressure control reduces the temperature of the evaporated water so that the water may be removed or expelled from the second gas space at less than 120°C. Doing so reduces energy losses and enhances the separation of useful fractions still contained in the water.

Therefore, it is respectfully submitted that the Examiner is incorrect in stating that Wiltzer et al. discloses:

*"a first stage wherein above atmospheric pressure is applied, in a first reactor having a first gas space, at temperatures between 180°C and 280°C (see Column 1, line 40), to the starting material, producing evaporated water containing reaction components, and, after passing the starting material through the first stage, feeding the prepolymer obtained due to the passage to at least one further stage comprising a second reactor (see column 1, line 65) having a second gas space and removing or expelling the evaporated water from the second gas space (see column 2, line 5), where connecting the first gas space with pressure control to the second gas space"*

As indicated above, heating occurs in the melt drying section (10) of Wiltzer et al., not in the first reactor. Additionally, Wiltzer et al.'s melt drying section (10) does not have a gas space, and therefore does not have a gas space-to-gas space connection. Rather, the output from the melt drying section (10) is connected directly (and without pressure control) to the gas space of the second reactor (11).

Claims 10-12 and 14-17 depend on claims 8 and 12, respectively. The dependent claims are therefore patentable over Wiltzer et al. for the same reasons discussed above and also on their own merits.

#### **Double Patenting Rejection**

Claims 8-17 remain rejected on the ground of nonstatutory obviousness-type double patenting over claims 1 and 3 of Wiltzer et al. U.S. Patent No. 6,107,449. Applicants respectfully

disagree with the Examiner's rejection. For the reasons presented above, claims 8 and 12 as amended (and related dependent claims thereto) recite methods that are patentably distinct over the Wiltzer et al. patent. For example, Wiltzer et al. does not disclose heating the starting material in a first reactor having a gas space at a temperature between 180°C and 280°C, and supplying the evaporated water from the gas space of the first reactor to the gas space of a second reactor through a pressure controlled connection between the gas spaces. As such, Wiltzer et al. does not reduce the temperature of the evaporated water using the pressure control in the connection between the gas spaces.

#### Summary


The remarks presented above are believed to be sufficient to overcome all of the objections and rejections to the claims of the present application. The Examiner is, therefore, respectfully requested to reconsider and withdraw the subject rejections and to pass the application through to an allowance.

If the Examiner does not agree, however, but believes that an interview would advance the progress of this case, the Examiner is respectfully invited to telephone Applicant's representative at the number below so that an interview may be scheduled.

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Respectfully submitted,



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